

الف) $y = \frac{x+3}{2x^3+3x^2-8x+3} \rightarrow \begin{array}{r} 2x^3+3x^2-8x+3 \overline{) x+1} \\ 2x^3+3x^2-8x+3 \\ \hline 0 \end{array}$

$\rightarrow (x+1)(x-\frac{1}{2})$

$\Rightarrow D_f = \mathbb{R} - \left\{ -1/\frac{1}{2} \right\}$

$\Rightarrow y = \frac{x+3}{(x-1)(2x-1)(x+3)}$

$\Rightarrow D_f = \mathbb{R} - \left\{ 1/\frac{1}{2} \right\}$

ب) $y = \frac{x+3}{2x^3+9x^2+10x+3} \rightarrow \begin{array}{r} 2x^3+9x^2+10x+3 \overline{) x+1} \\ 2x^3+9x^2+10x+3 \\ \hline 0 \end{array}$

$\rightarrow (x+3)(2x+1)$

$\Rightarrow y = \frac{x+3}{(x+1)(x+3)(2x+1)}$

$\Rightarrow D_f = \mathbb{R} - \left\{ -1/-1/\frac{1}{2} \right\}$

الف) $\frac{x^3-2x^2+2x-1}{x^3-x^2} \rightarrow \begin{array}{r} x^3-2x^2+2x-1 \overline{) x-1} \\ x^3-x^2+0x-1 \\ \hline -x^2+2x-1 \\ -x^2+x \\ \hline x-1 \end{array}$

$\rightarrow (x-1)(x^2-x+1) \Rightarrow D_f = \mathbb{R} - \{1\}$

$\rightarrow \Delta < 0$

ریشه حقیقی ندارد

ب) $\sqrt{\frac{x+3}{x^3-2x^2+2x-1}} = \frac{-3}{+0-0+} \Rightarrow D_f = (-\infty, -3] \cup (1, +\infty)$

الف) $(x-1)(x^2-x+1)$ در الف تجزیه شد

$\rightarrow \Delta < 0 \Rightarrow$ مقادیر +

$x^2 - 5|x-1| - 2x + 5 = 0$

1) if $x \geq 1 \Rightarrow x^2 - 5x + 5 - 2x + 5 = 0 \Rightarrow x^2 - 7x + 10 = 0 \Rightarrow (x-2)(x-5) = 0$

2) if $x < 1 \Rightarrow x^2 - 5 + 5x - 2x + 5 = 0 \Rightarrow x^2 + 3x = 0 \Rightarrow x(x+3) = 0$

$\Rightarrow D_f = \mathbb{R} - \left\{ -3/0/2/5 \right\}$

الف) $y = \sqrt{[-x] - 2} = [-x] - 2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow x \leq -2$ -F
 $D_f = (-\infty, -2]$

ب) $[x]^2 - 2[x] - 3$ $[x] = A \rightarrow A^2 - 2A - 3 = 0 \rightarrow (A+1)(A-3)$

$\Rightarrow \begin{cases} [x] = -1 \rightarrow (-1, 0) \\ [x] = 3 \rightarrow (3, 4) \end{cases} \Rightarrow (-1, 0) \cup (3, 4)$

٥- قسمت ب صفحه آخر

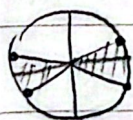
الف) $y = \sqrt{\left[x - \frac{1}{3}\right] + \left[x + \frac{2}{3}\right]} \Rightarrow \left[x - \frac{1}{3} + 1\right] + \left[x + \frac{2}{3}\right] \geq 1$

$2\left[x + \frac{2}{3}\right] \geq 1 \rightarrow \left[x + \frac{2}{3}\right] \geq \frac{1}{2} \rightarrow x + \frac{2}{3} \geq 0 \rightarrow x \geq -\frac{2}{3} \Rightarrow D_f = \left[-\frac{2}{3}, \infty\right)$ -F

الف) $y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \frac{\sin x}{\cos x} + 1 \neq 0 \rightarrow I) \cos x \neq 0 \rightarrow$ 
 $\rightarrow II) \frac{\sin x}{\cos x} + 1 \neq -1 \rightarrow$ 

$D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2} / k\pi - \frac{\pi}{2} / 2k\pi + \pi\right\}$

ب) $1 - 4 \sin^2 x \geq 0 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$



$D_f = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\right]$

الف) $2 \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{2}$



$D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\right]$ -V

ج) $1 - 2 \cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2} \rightarrow \bigcirc \Rightarrow D_f = \left[2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3} \right]$ ✓

الف) $-1 \leq x^2 + 3x + 1 \leq 1 \rightarrow \textcircled{1} x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0$ ✓

$\textcircled{2} \rightarrow x^2 + 3x + 1 \geq -1 \rightarrow x^2 + 3x + 2 \geq 0 \rightarrow (x+1)(x+2) \geq 0$

$\Rightarrow \textcircled{1} \cap \textcircled{2} \Rightarrow [-2, -1] \cup [-1, 0]$

ب) $\textcircled{1} \quad 5 - 2x \geq 0 \rightarrow x \leq \frac{5}{2}$

$\cap \Rightarrow D_f = \left[2, \frac{5}{2} \right]$

$\textcircled{2} \quad -1 \leq \sqrt{5 - 2x} \leq 1 \rightarrow 5 - 2x \leq 1 \rightarrow x \geq 2$

الف) I) $1 - \log_x x > 0 \rightarrow \log_x x < 1 \rightarrow x < 3 \Rightarrow D_f = (0, 3)$ ✓
II) $x > 0$

ب) I) $1 - \log_{\frac{x}{2}} x > 0 \rightarrow \log_{\frac{x}{2}} x < 1 \rightarrow x > \frac{1}{2} \Rightarrow \left(\frac{1}{2}, +\infty \right)$
II) $x > 0$

الف) $2^{x^2 - x^2} - 1 \geq 0 \rightarrow 2^{x^2 - x^2} \geq 1 \rightarrow x^2 - x^2 \geq 0$ ✓

$x^2 - 4x + 3 \leq 0 \rightarrow (x-1)(x-3) \leq 0 \rightarrow D_f = [1, 3]$

ب) $\frac{3x+5}{2x+4} \in W' \rightarrow -\frac{3W+5}{2W+4} = \frac{5-3W}{2W-3}$

$D_f = \left\{ x \mid x = \frac{5-3k}{2k-3}, k \in W' \right\}$

$\left[x - \frac{1}{2} \right] + \left[\frac{1}{2} - x \right] \xrightarrow{f(x)} [x] - [-x] \xrightarrow{f(x)} D_f = \mathbb{Z}$

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